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BUREAU OF PLANT INDUSTRY

OFFICE OF COTTON, TRUCK, AND FORAGE CROP DISEASES

WASHINGTON, D. C.

POWDERY DRY-ROT OF POTATO

C., T., & F. C. D. Circular 1.

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FIG. 1.—Fusarium tuber rot of the potato: *A*, Stem-end infection, showing the sunken, wrinkled, and discolored surface and growth of mold responsible for the rot breaking through the surface; *B*, surface infection, started in a break of the skin, showing sunken, wrinkled, and discolored tissue and growth of mold; *C*, tuber kept in moist air, showing abundant growth of mold and wrinkled, though not sunken, discolored area; *D* and *E*, potatoes severely affected with the powdery dry-rot type of Fusarium tuber rot, showing cavities, starch, and powdery and fluffy growth of mold in the cavities of destroyed tissue, with a sharp line separating the healthy from the diseased tissue. Note the tendency of the rot to destroy the heart of the tuber. *F*, Tuber kept in moist, warm air, severely affected with the moist type of Fusarium tuber rot, showing cavities with mold and the soft, brownish black tissue that precedes them.

POWDERY DRY-ROT OF POTATO

(FUSARIUM)

ATTENTION OF POTATO GROWERS and shippers is called to the heavy and unnecessary losses of potatoes from decay in shipments now arriving in the markets of the Central States, particularly in Early Ohio potatoes originating in the Great Plains and Rocky Mountain States.

It is not uncommon for the inspectors of the Department of Agriculture to find from 10 to 50 per cent of the contents of a car unfit for market on account of powdery dry-rot, and the reports are becoming more frequent and the losses more severe as the storage season progresses.

The remedy for this situation must be applied at the point of origin by sorting out all potatoes showing any trace of decay, cuts, or bruises, and by careful handling to prevent further injury.

Powdery dry-rot is caused by a fungus, or mold, which attacks potatoes, as a rule, after harvesting, and then only when they are bruised or cut by careless handling. (Fig. 1.)

Affected tubers have sunken, shriveled, wrinkled, or broken areas on their surface which may be dark brown to black in color, and on them may appear masses of whitish or bright-colored mold.

The interior of these areas is made up of dried brownish tissue, of starch, and a whitish to bright-colored fluffy or powdery growth of mold lining the extensive and numerous cavities that are present. It is this mold that is responsible for the rot. In the early stages the affected tissue is black to light brown in color and is sharply set off from the healthy tissue by a brown to black line of corky tissue. Severely affected tubers are much lighter in weight than healthy ones, because of the extensive hollow areas. Often the entire heart of a tuber may be rotted out, leaving merely a shell of sound tissue.

At times, especially if kept warm or in a moist atmosphere or if infected with bacteria, the typical symptoms are partly obscured by the presence of soft, watery tissues of chocolate to sepia color, which generally are more extensive than the typical dry areas and precede these into the tuber.

The mold, or fungus, is able to live over in the soil, in storage places, in sacks, and in cars, and consequently bruised and cut tubers are subject to infection from the time they are dug until they reach the consumer.

Potatoes should be handled carefully and not as though they were cobblestones. The potato is a living thing, with a protective skin, which it is able to keep intact if it has a fair chance. Breaks in this protective skin, caused by deep peeling or feathering, prevalent in im-

mature stock, by tools, or other agencies, are the natural points of entry for this mold. Once it gets into a tuber under favorable temperature and moisture conditions, the potato is subject to complete decay and is a source of infection for all its neighbors. Storing potatoes in a dry, well-ventilated place at a temperature between 34° and 38° F. retards the progress of the rot. The powdery dry-rot can develop at lower temperatures than most other tuber rots.

The protection of the crop should begin at the time of harvesting, to insure against any injury that will break the skin of the potato. Growers should also bear in mind that this type of rot has been prevalent for years and that storage houses and baskets, barrels, and other old containers are likely to be covered with spores capable of infecting the new crop. It will therefore be a wise precaution to clean out all rubbish and refuse from the preceding crop and to disinfect the houses and their contents by washing or spraying before any potatoes are put in, using a solution of bluestone, 2 pounds to 50 gallons of water, or formaldehyde, 1 pint to 12 or 15 gallons of water.

After the potatoes are stored they should be kept cool and well ventilated. Do not store in deep piles.

The shipper should bear in mind that unsorted or field-run stock that shows more or less dry-rot will develop more while en route to market, and that he will eventually have to pay for these losses, for the freight on the spoiled stock, and for the labor of re-sorting at the terminal market. The reputation of his district is also unfavorably affected.

The attention of potato shippers is also called to the food products inspection service of the Bureau of Markets, through which they may secure an official certification as to the soundness of their carlot shipments upon application to the Food Products Inspectors at Boston, Mass.; Chicago, Ill.; Cincinnati and Cleveland, Ohio; Dallas, Fort Worth, Galveston, and Houston, Tex.; Jacksonville, Fla.; Jersey City, N. J.; Kansas City, Mo.; Memphis, Tenn.; Minneapolis, Minn.; New Orleans, La.; New York, N. Y.; Oklahoma City, Okla.; Philadelphia and Pittsburgh, Pa.; Providence, R. I.; St. Louis, Mo.; St. Paul, Minn.; and Washington, D. C.

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